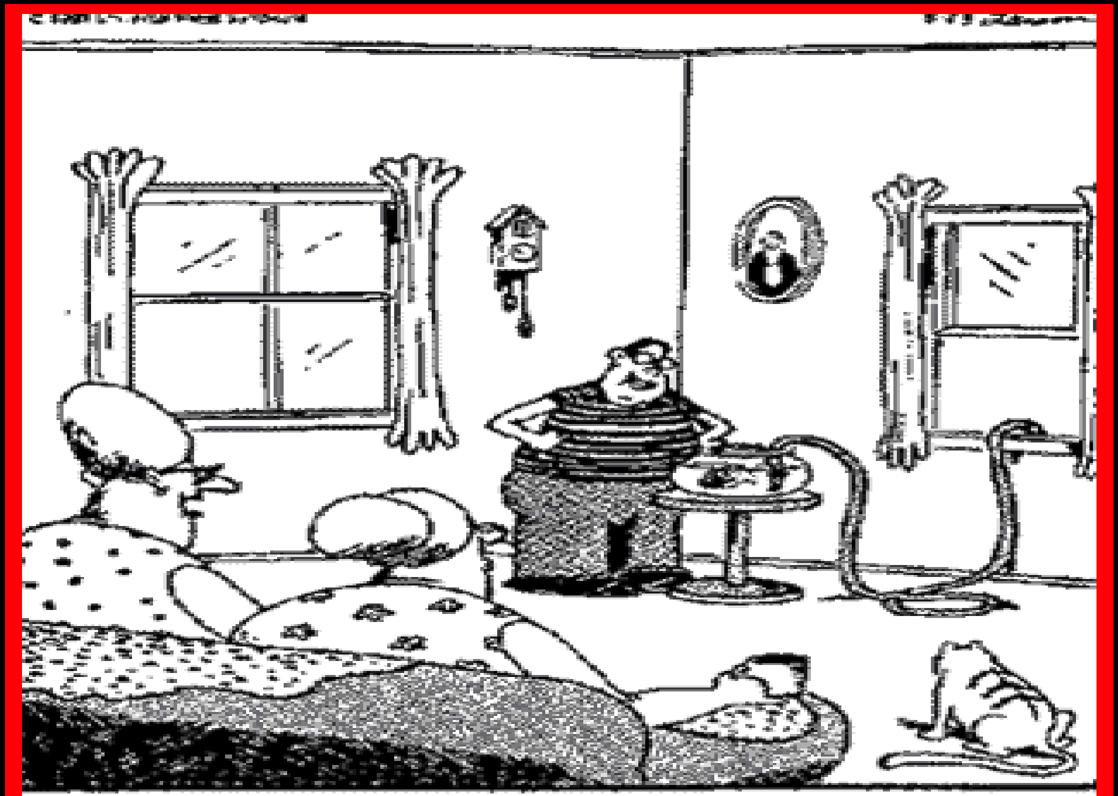
Ecological Assessment Exercise

Ch 6 Mod 4
HOs # 17,19,20

Learning Objective: The student will, based on handouts, references and lecture, learn how to select an ecological assessment technique.



"Oh, there goes Lenny again — draining off the goldfish bowl. . . . He wants to one day work for the Army Corps of Engineers, you know."

What tools are we going to be considering?

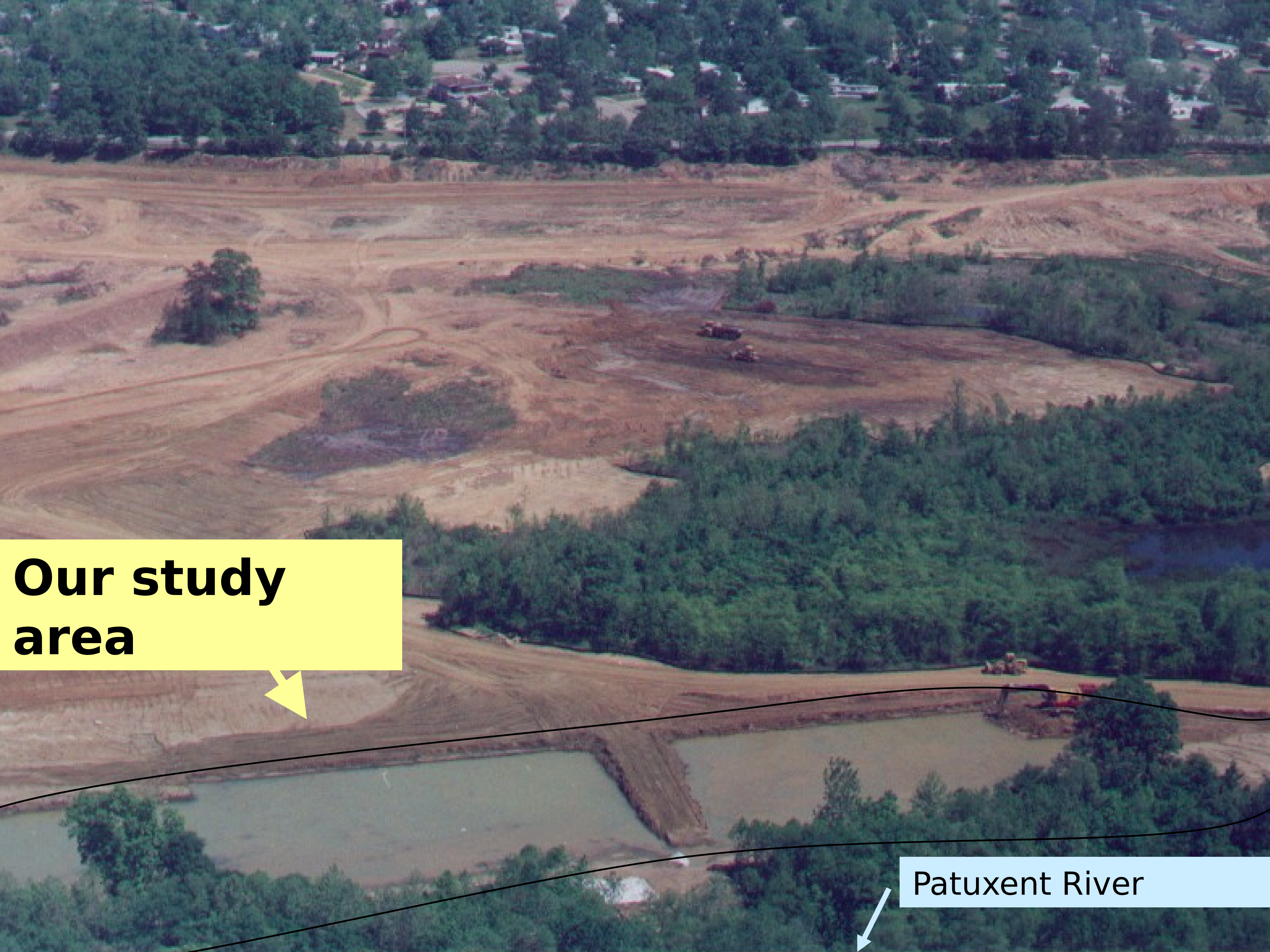
- Professional Judgment.
- Wetlands Rapid Assessment Procedure
- Habitat Evaluation Procedures
- Hydrogeomorphic Approach (quick overview).

Classroom Approach

1. **Form teams (designate a “decision maker”)**
2. **Review and discuss slides and handouts for each procedure (study area pictures and procedure information)**
3. **Compute an index score for PJ, WRAP, HEP**
4. **Record index scores at front of** room
5. Open discussion of results
6. Group discussion of HGM model for

Study Site

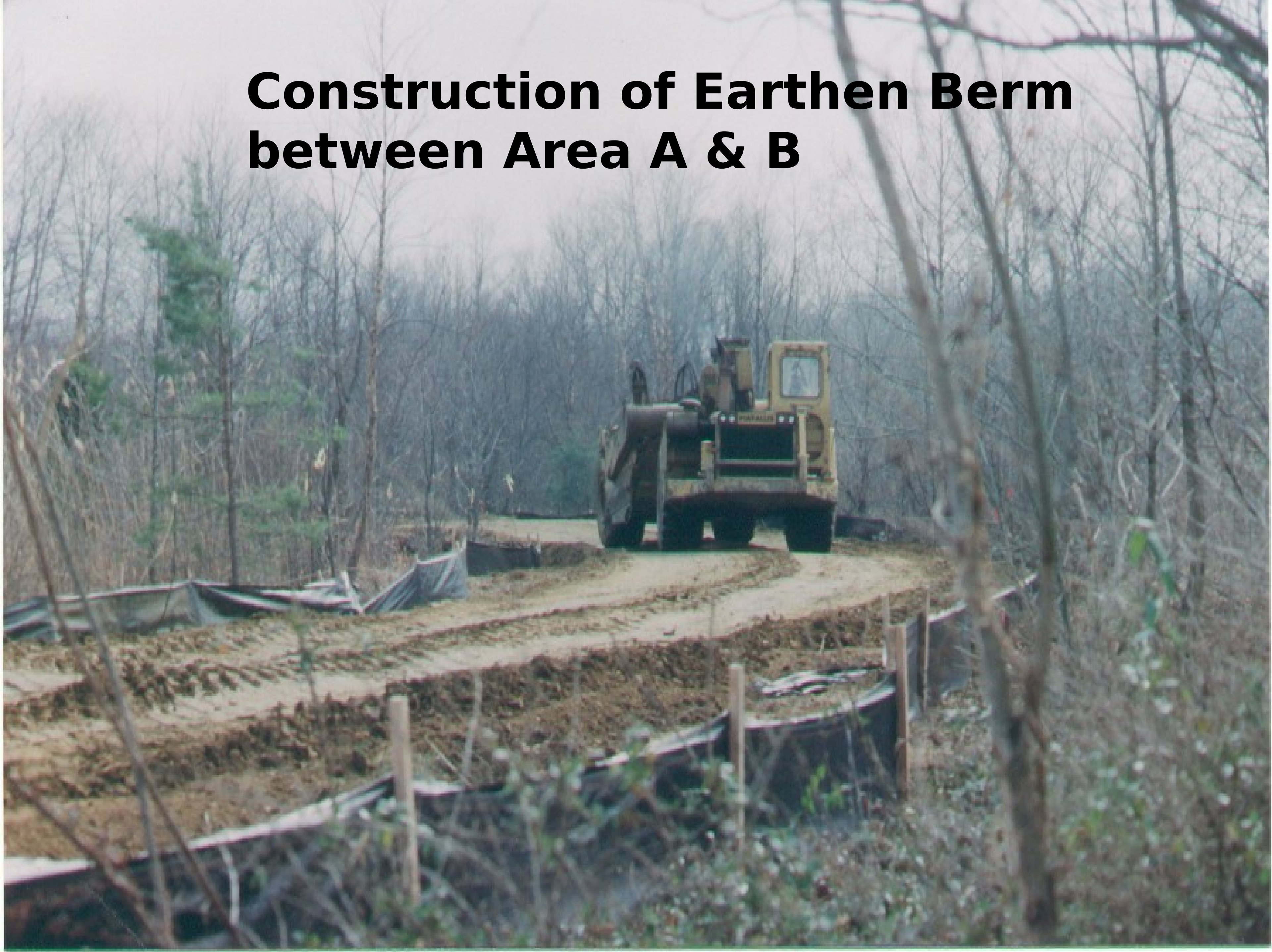
Wooten’s Landing, 4550 Sands Road,
Harwood, MD HO# 19
http://www.jugbay.org/



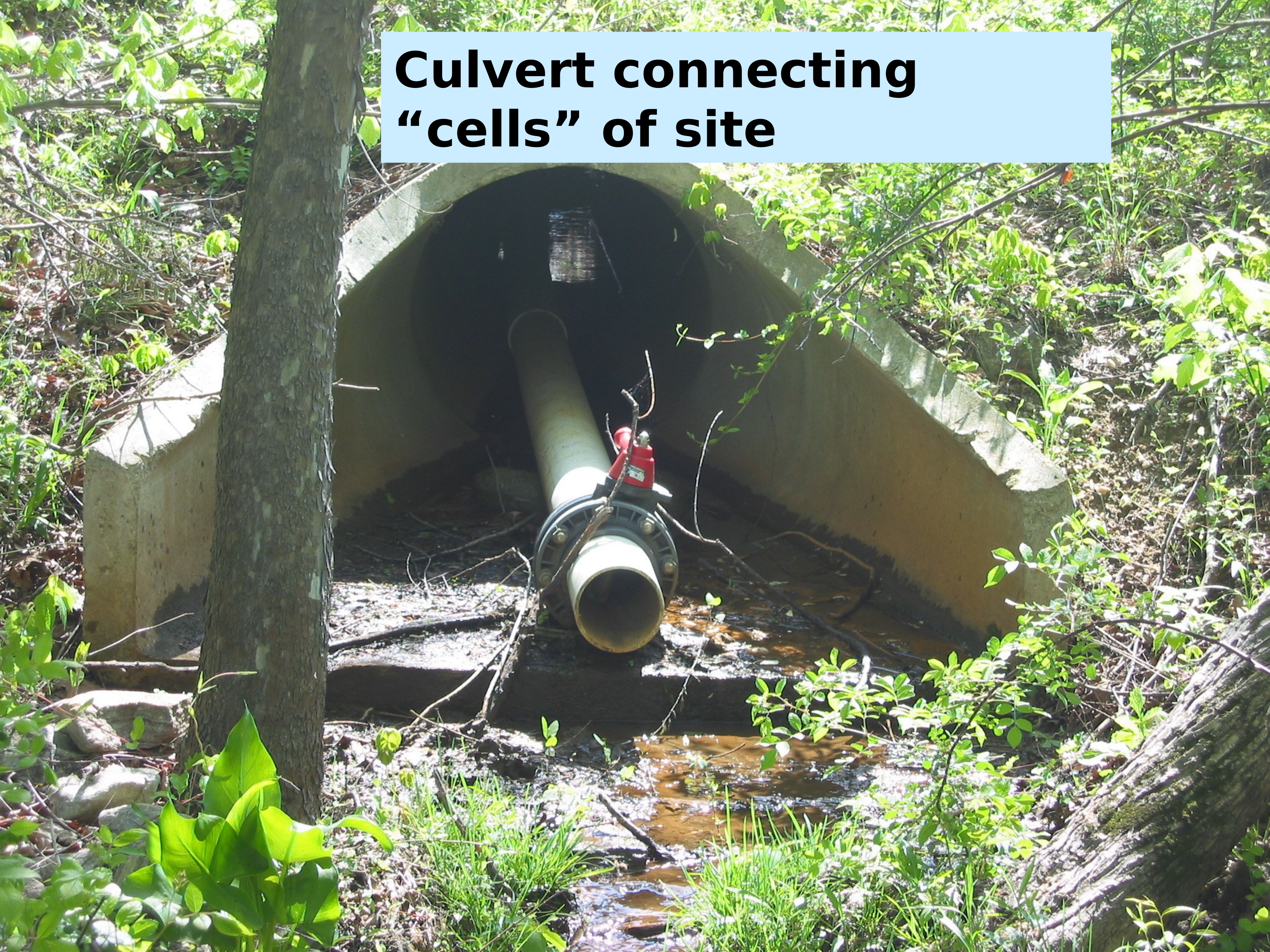
Our study area

Patuxent River

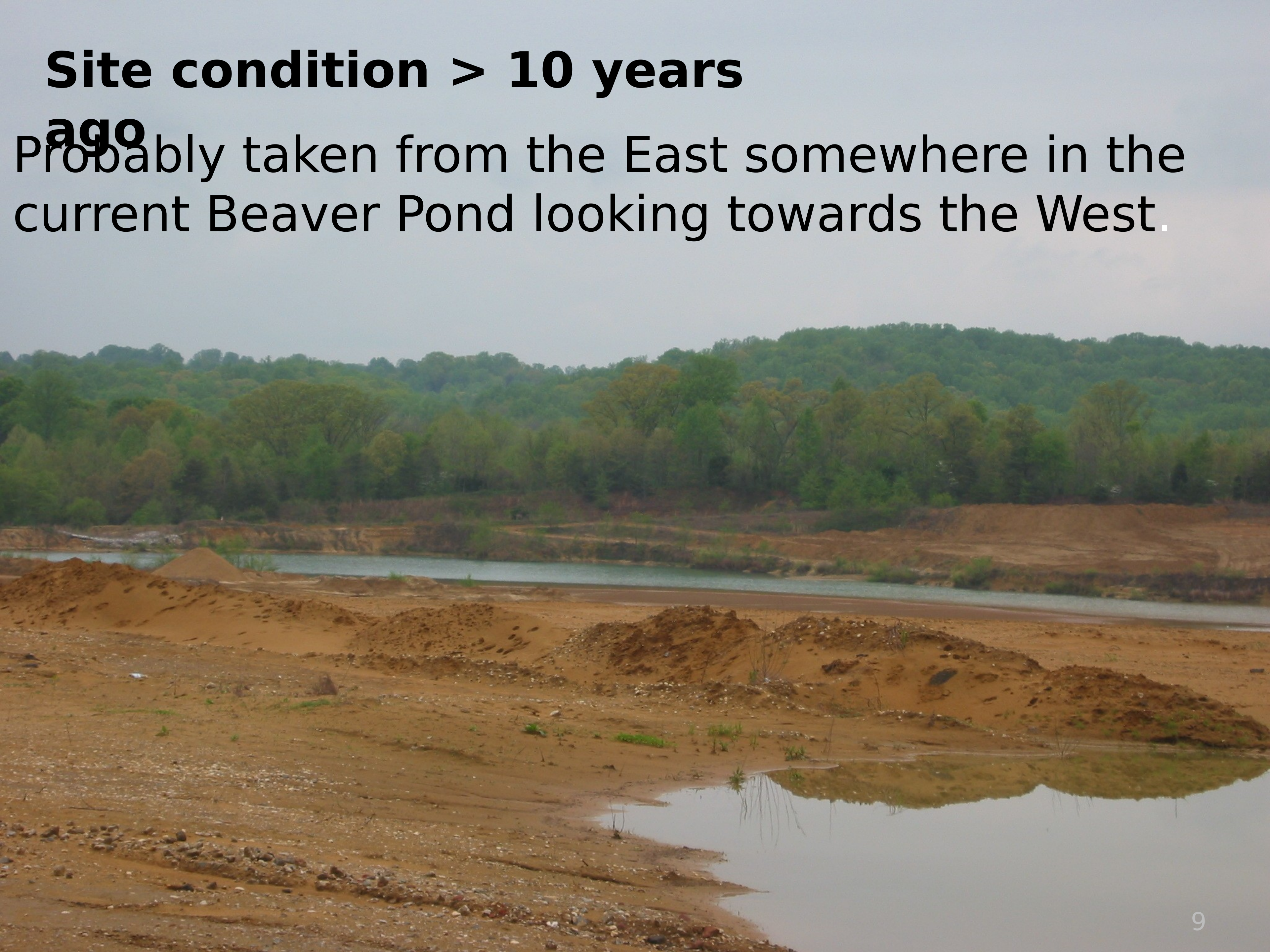
Construction of Earthen Berm between Area A & B



Culvert connecting “cells” of site

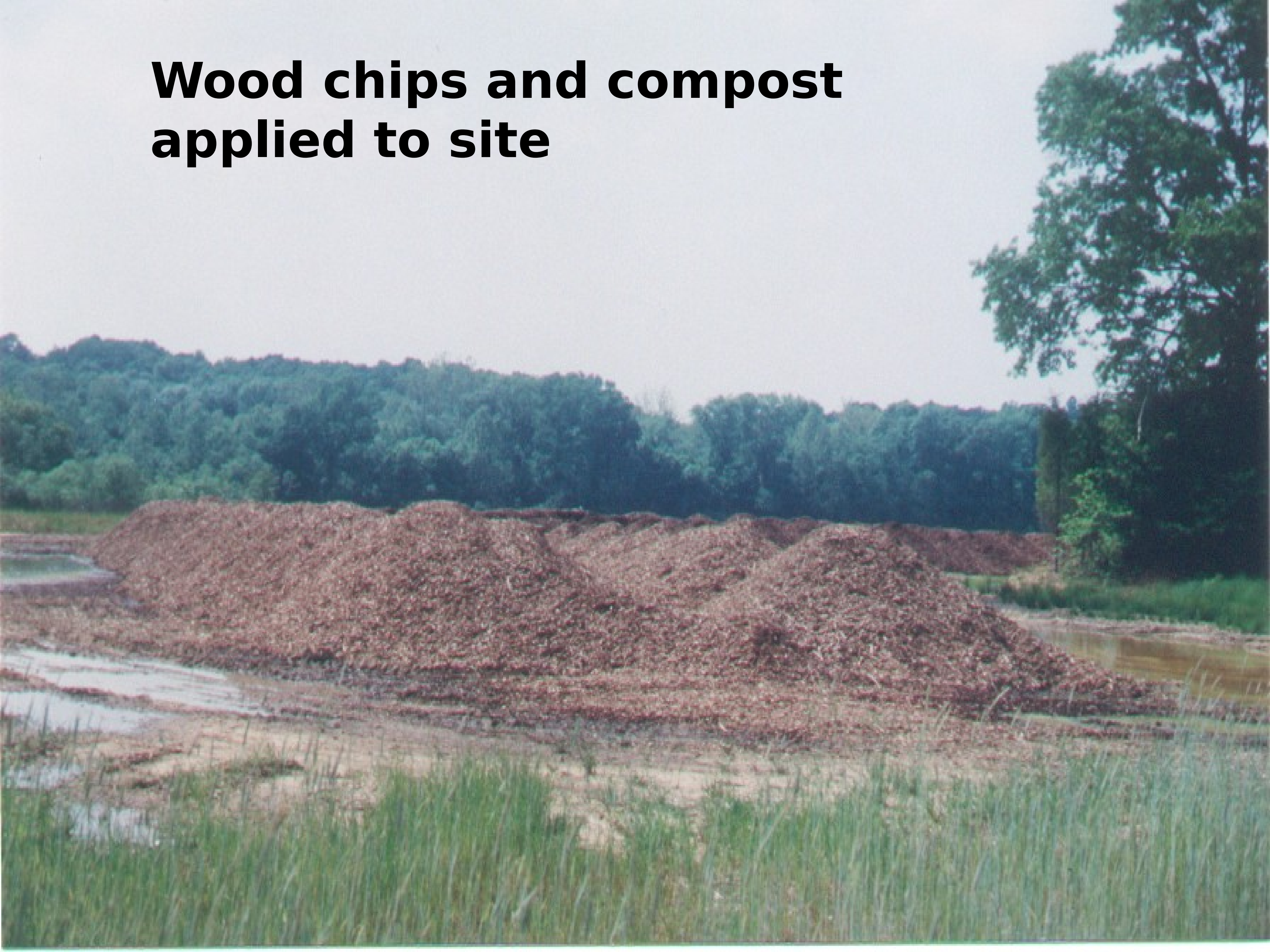


Site condition > 10 years ago

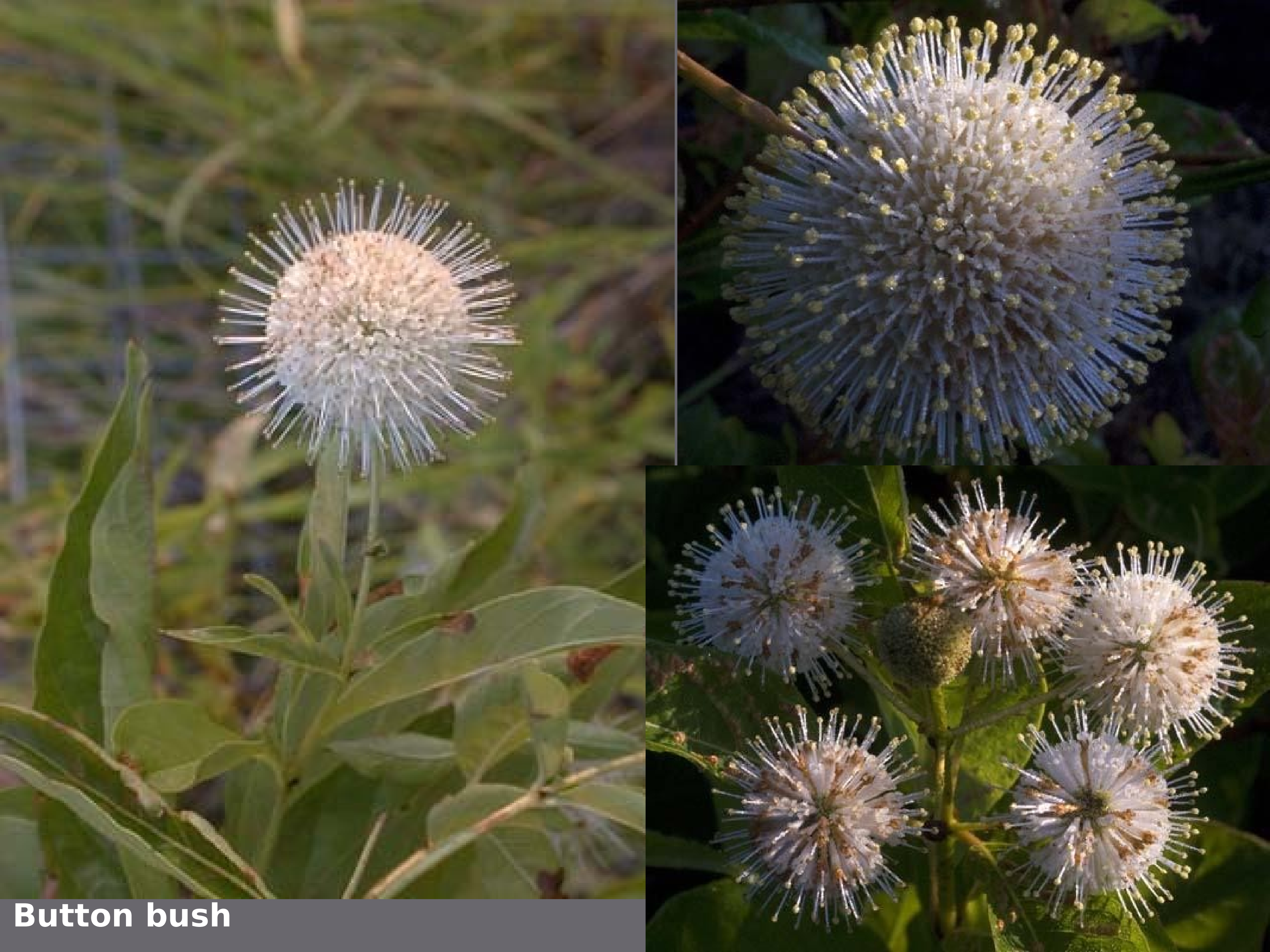


Probably taken from the East somewhere in the current Beaver Pond looking towards the West.

Wood chips and compost applied to site



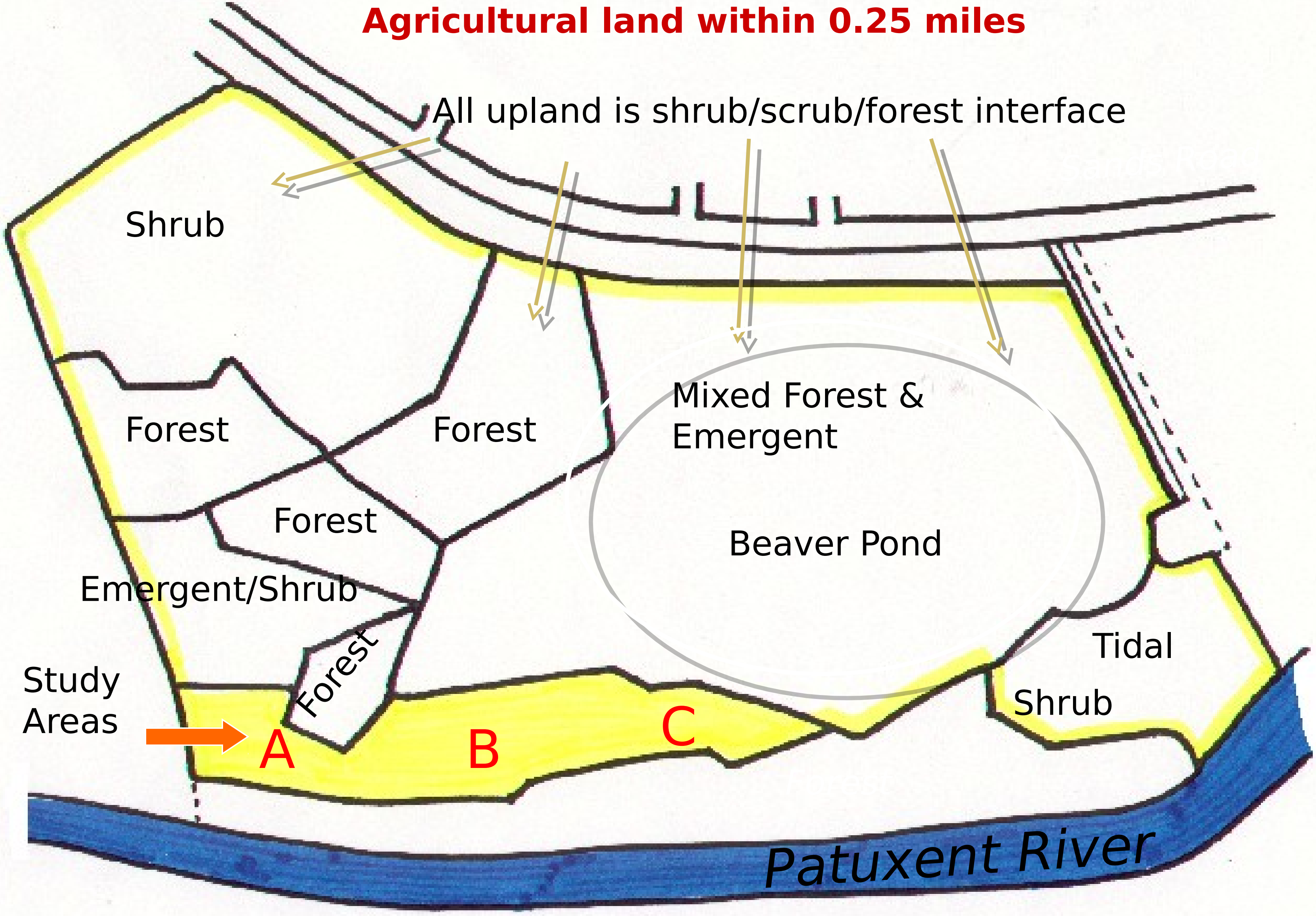
Button bush seedlings planted



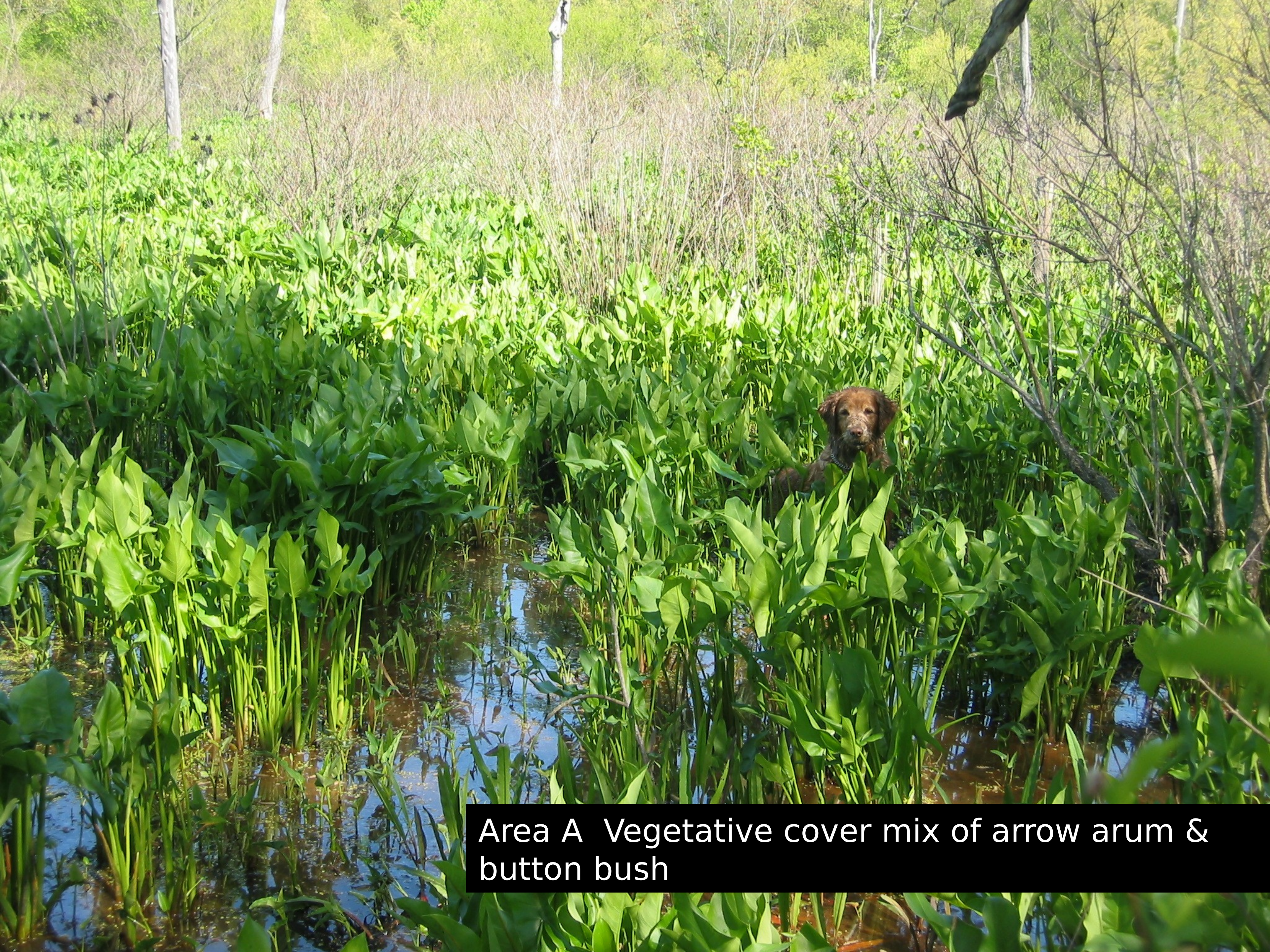
Button bush

Rangeland (herbaceous or shrub/brush) adjacent

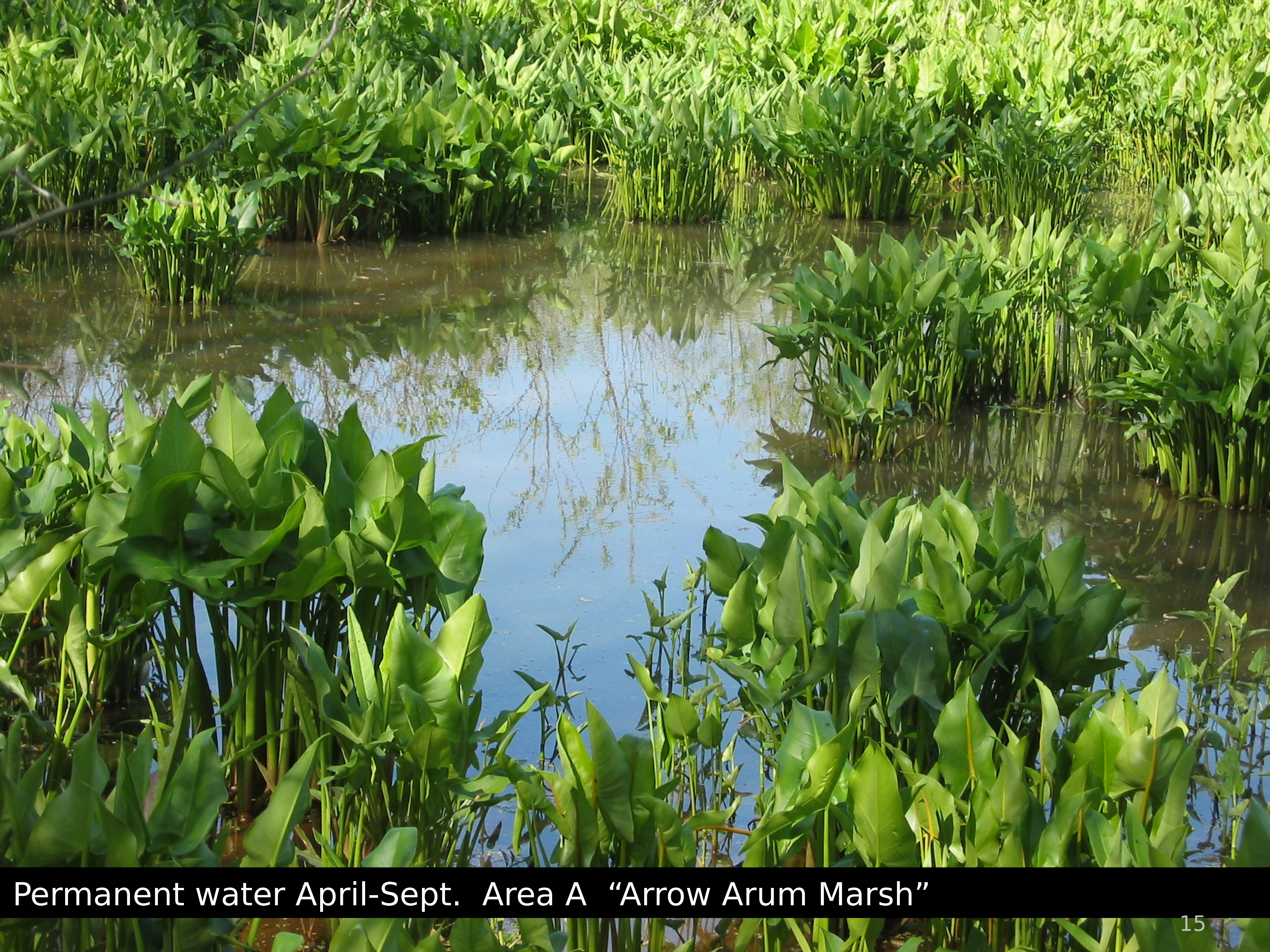
Agricultural land within 0.25 miles



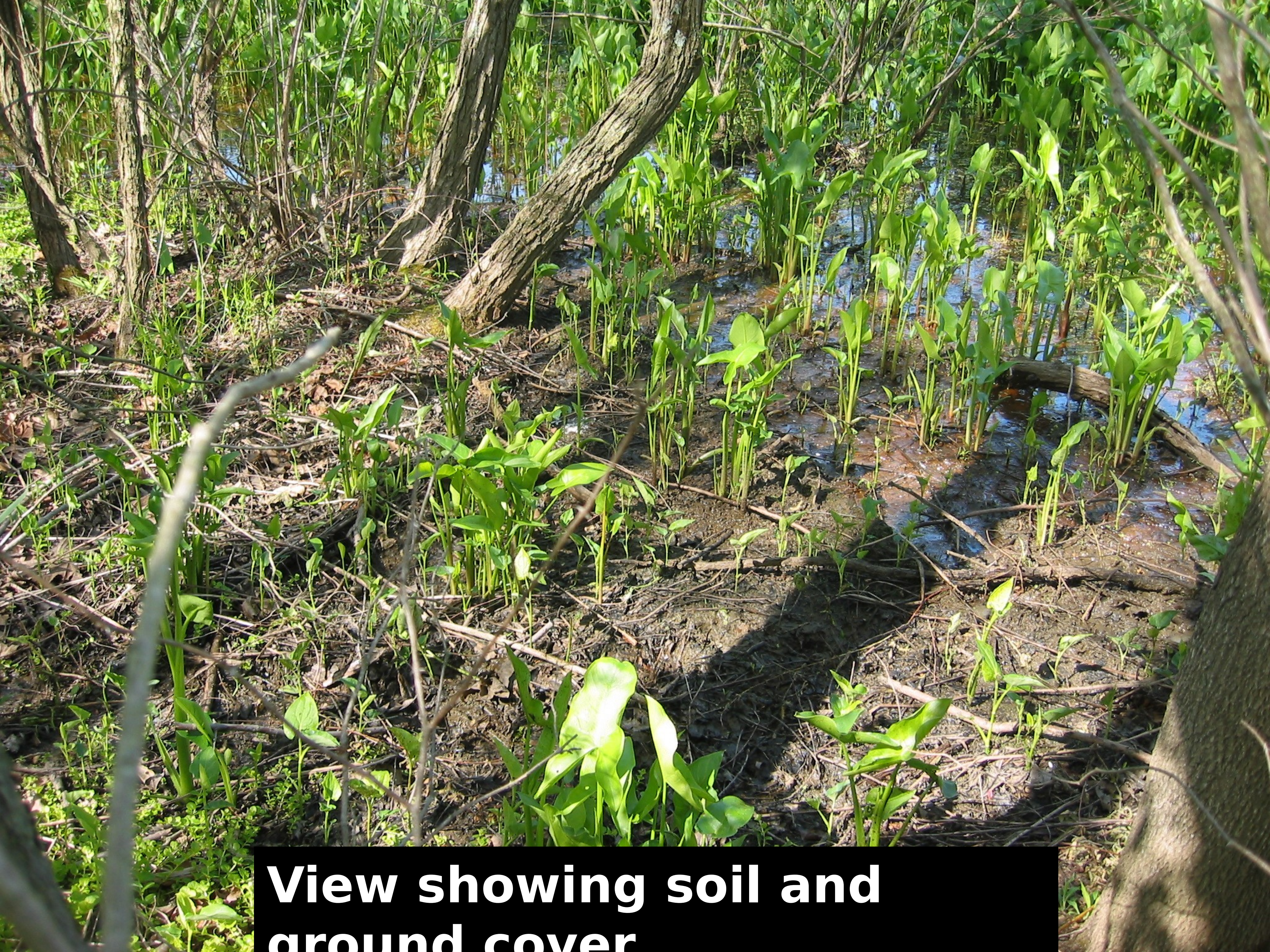
All upland is shrub/scrub/forest interface
Shrub
Forest
Forest
Forest
Mixed Forest &
Emergent
Beaver Pond
Emergent/Shrub
Forest
Tidal
Shrub
Study
Areas
A
B
C
Patuxent River



Area A Vegetative cover mix of arrow arum & button bush



Permanent water April-Sept. Area A “Arrow Arum Marsh”



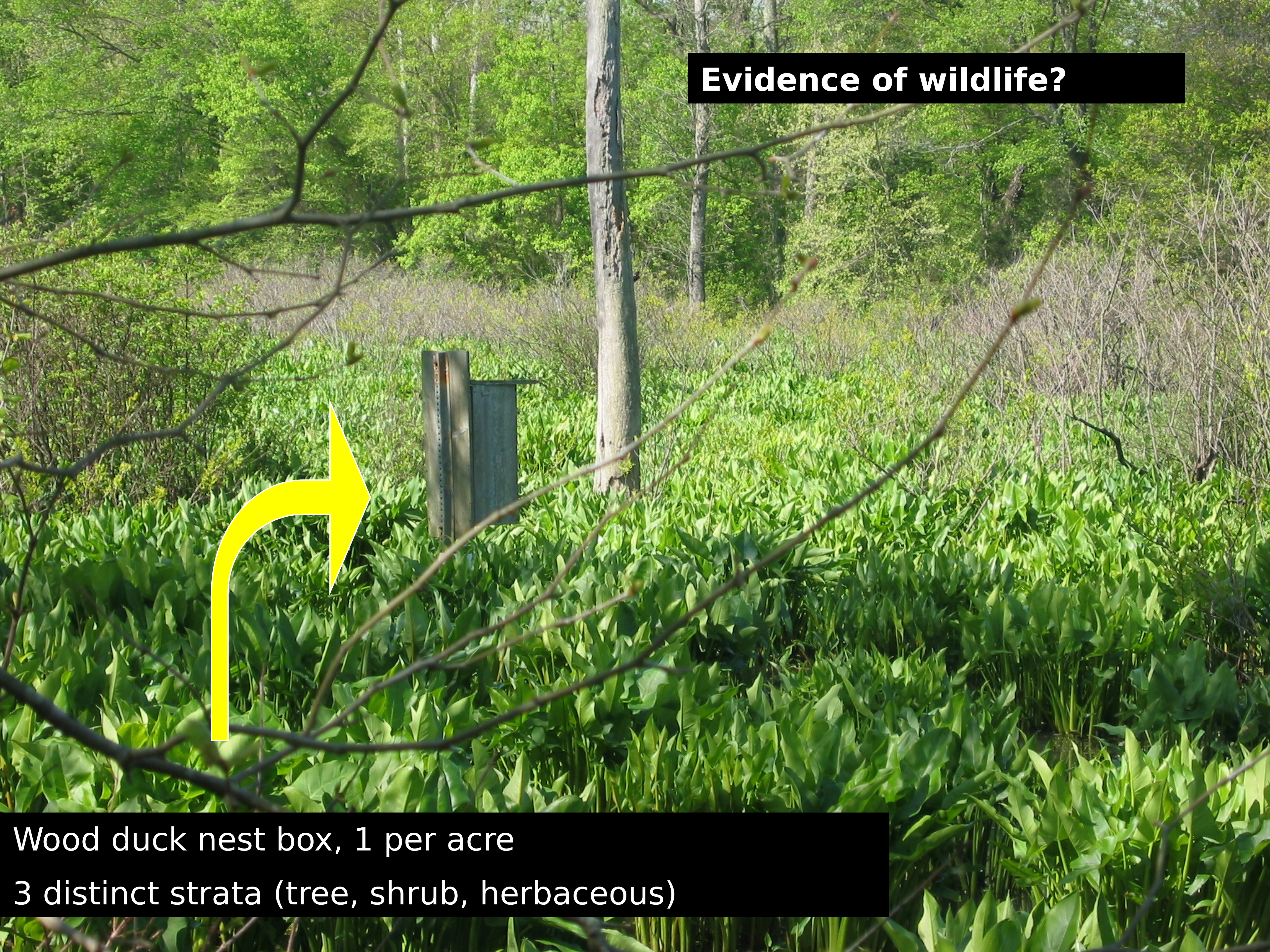
View showing soil and ground cover

15% of area less than 6” deep (avg. 6”)

>30% area herbaceous canopy cover

87% water surface covered by emergent vegetation +

Avg. height herbaceous cover 25”



Evidence of wildlife?

Wood duck nest box, 1 per acre

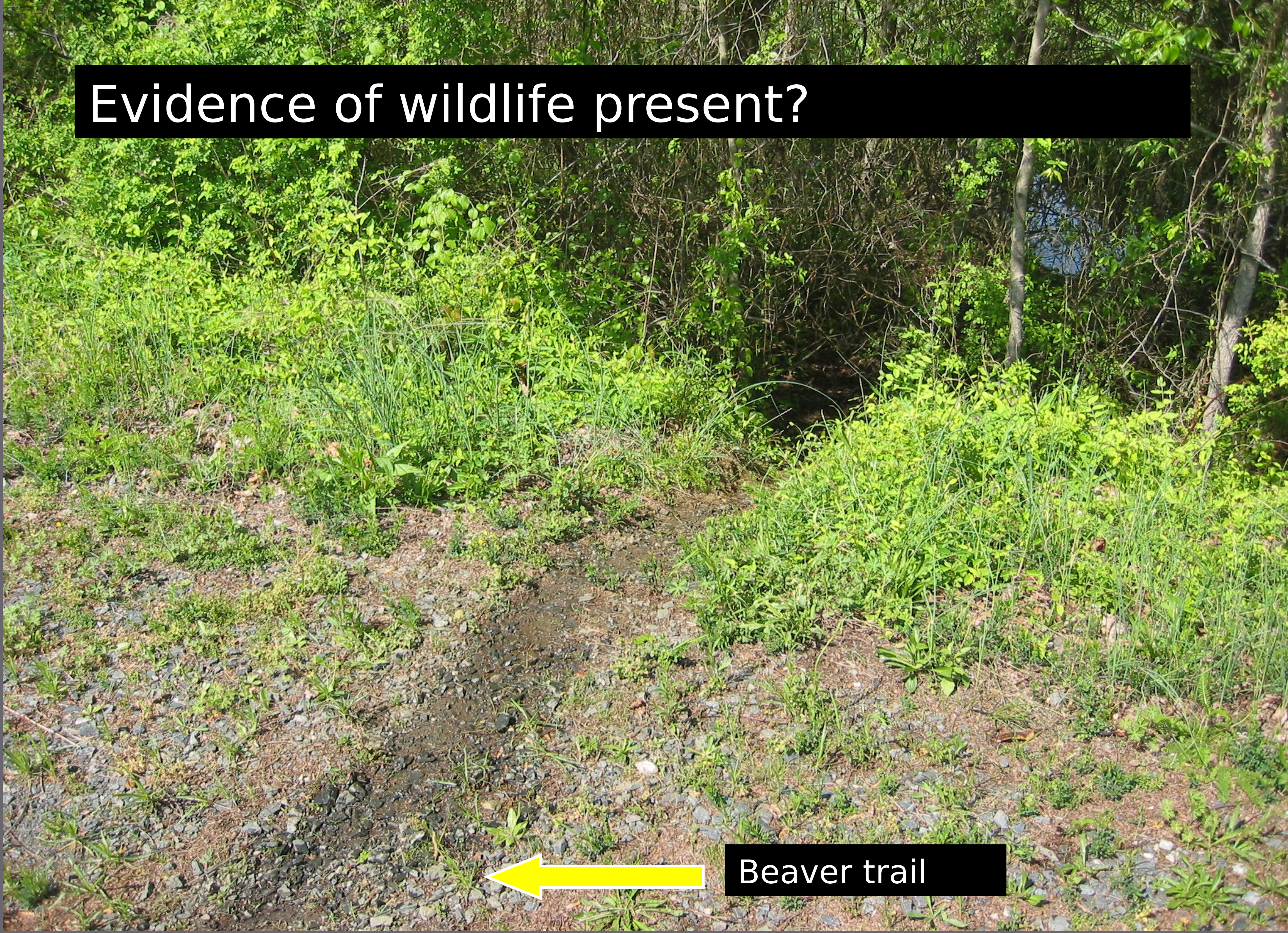
3 distinct strata (tree, shrub, herbaceous)

Area A   1 den tree (> 15” dbh) in adjacent forest

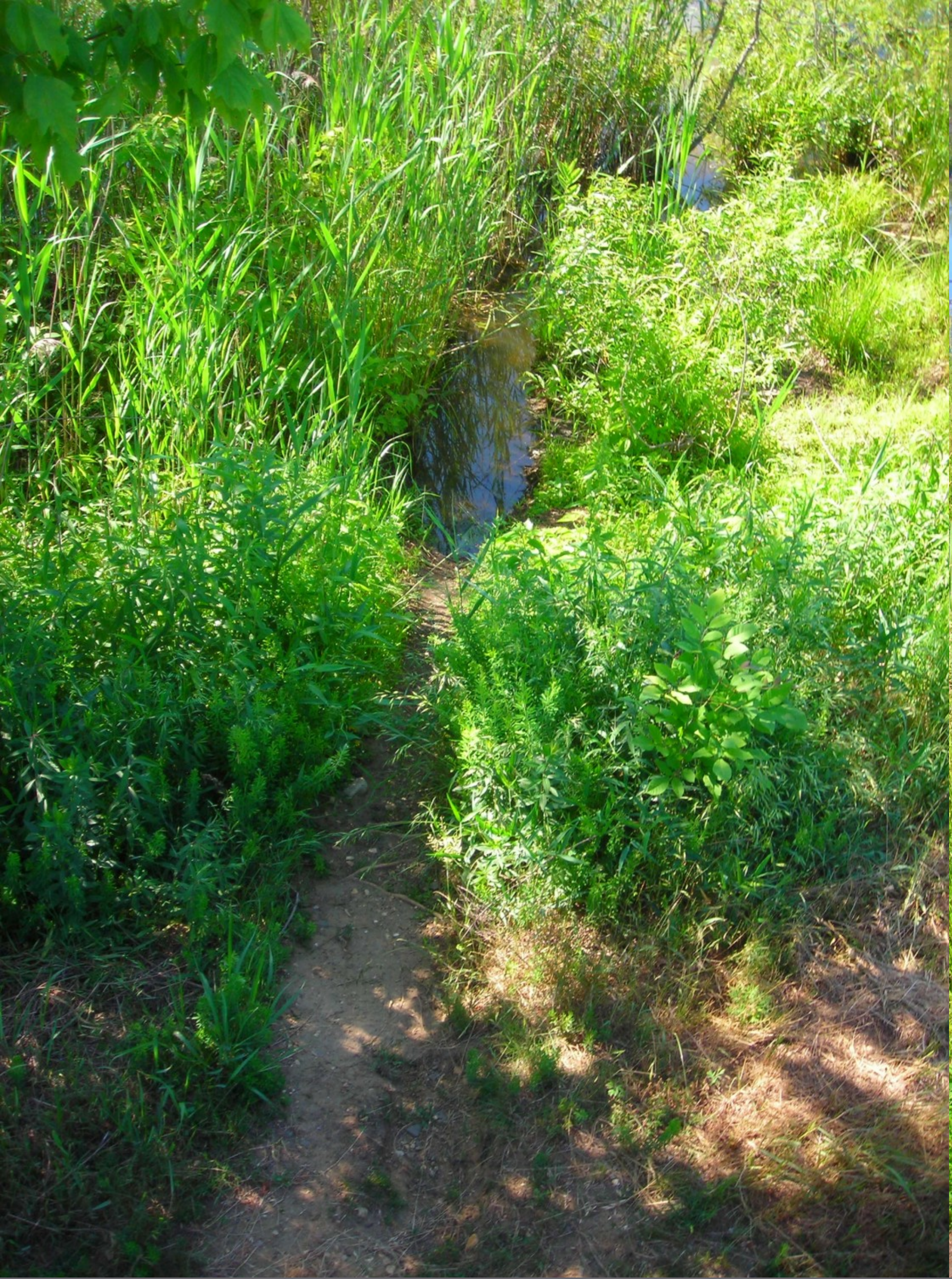
No *Typha* (cattail) or *Carex* (sedge)

Area A (same direction as previous photo)

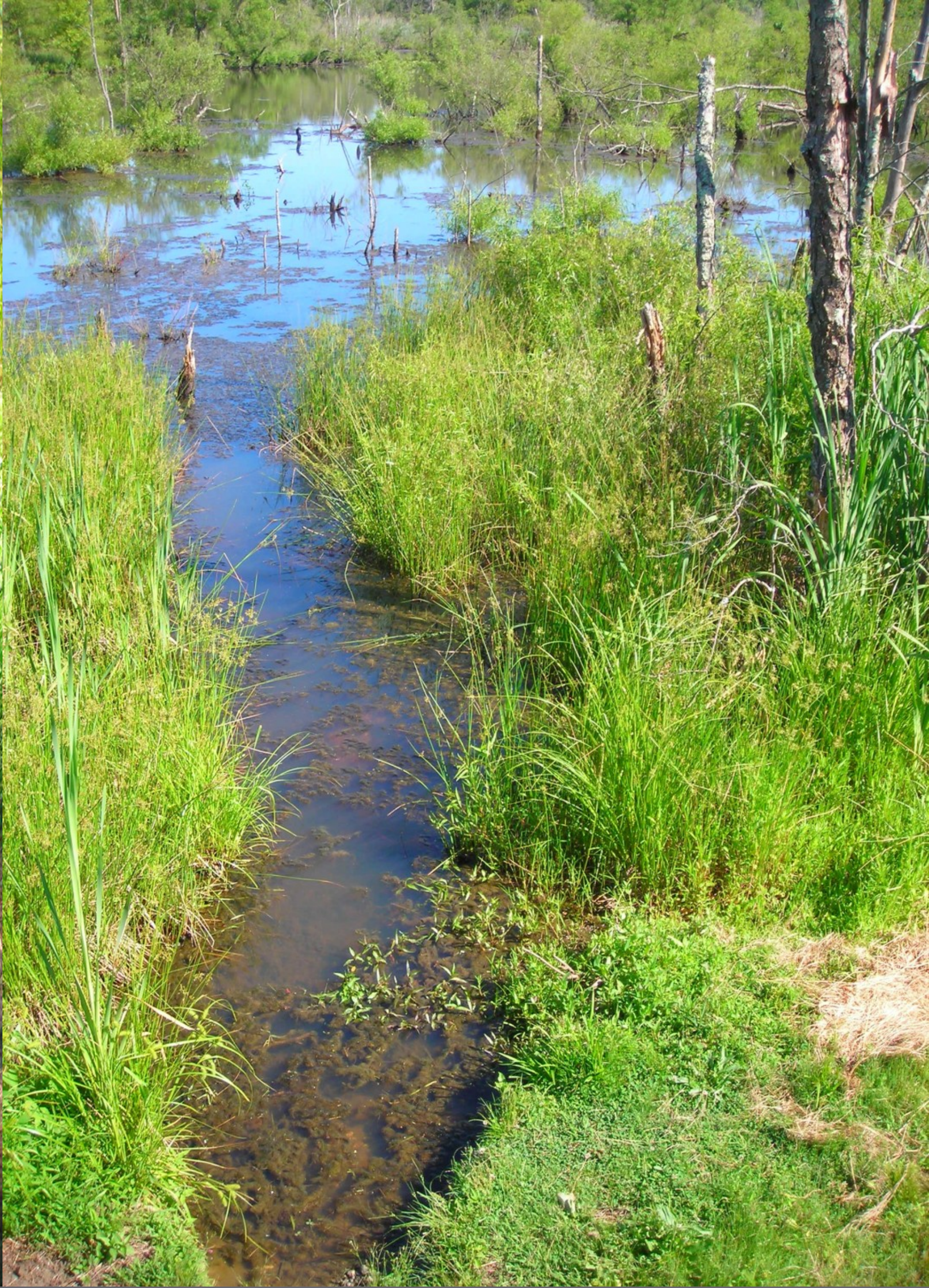
Evidence of wildlife present?



Beaver trail

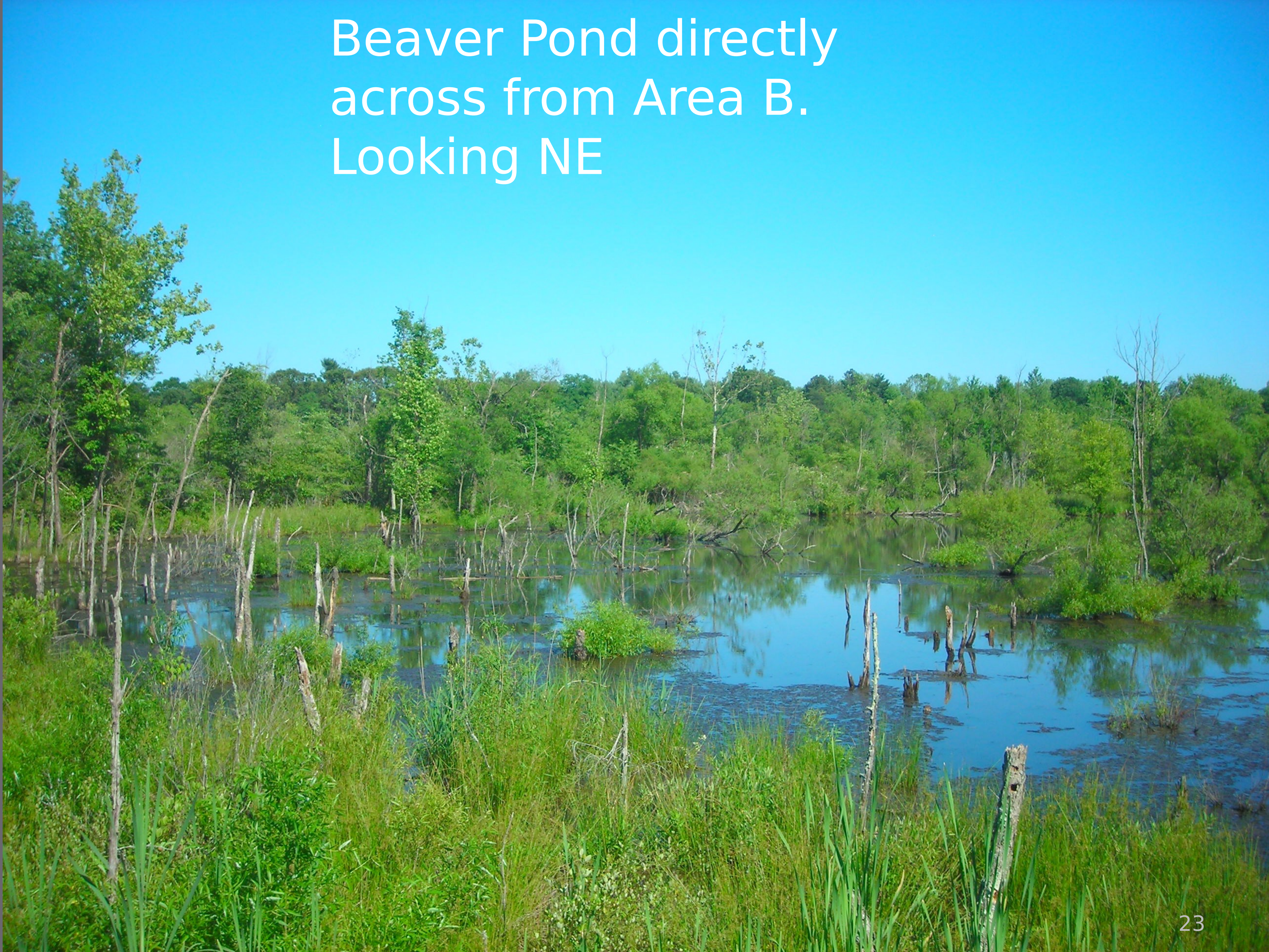


Beaver trail into Area B to West 2010

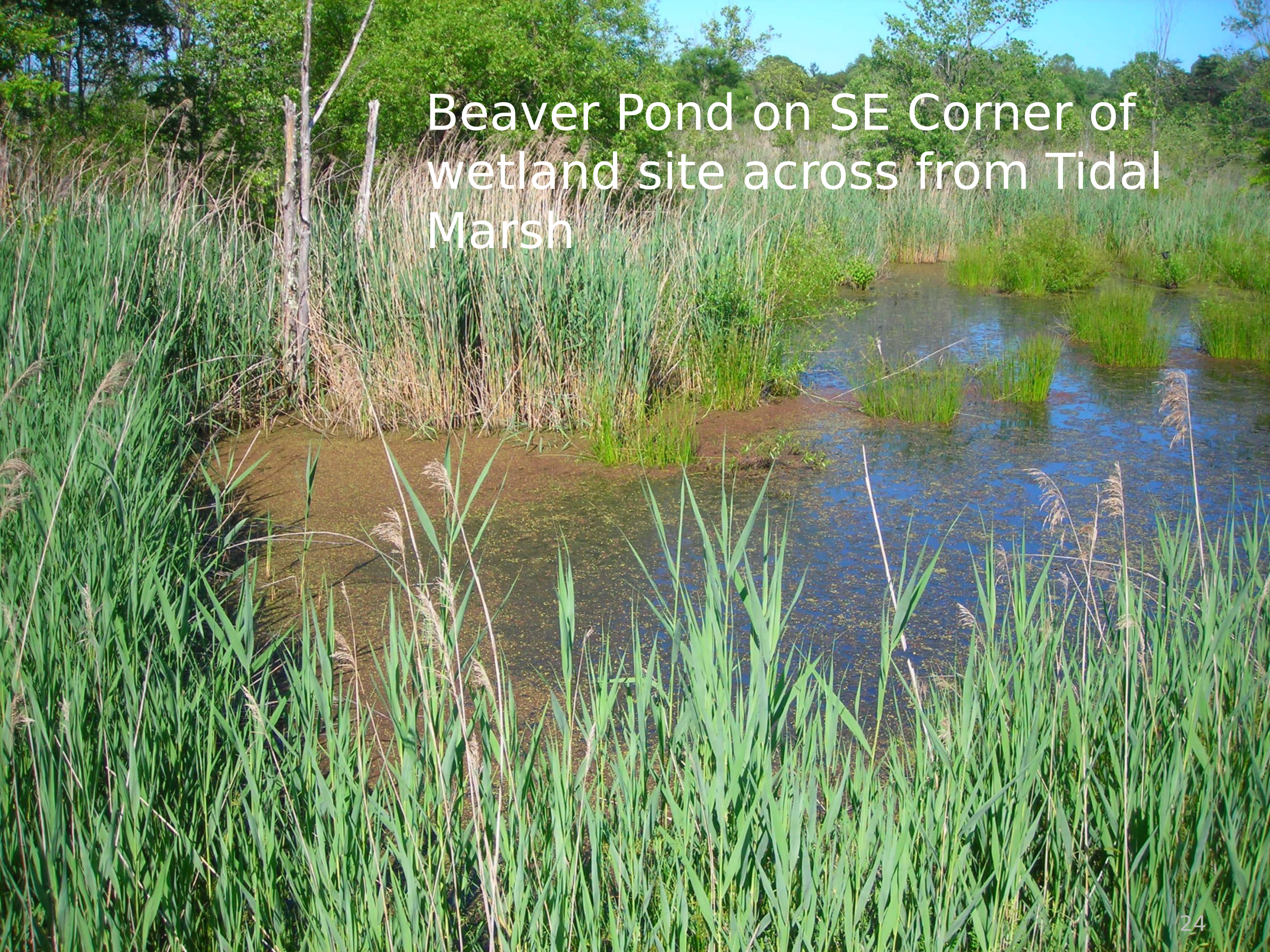


Same trail into Beaver Pond to East 2010

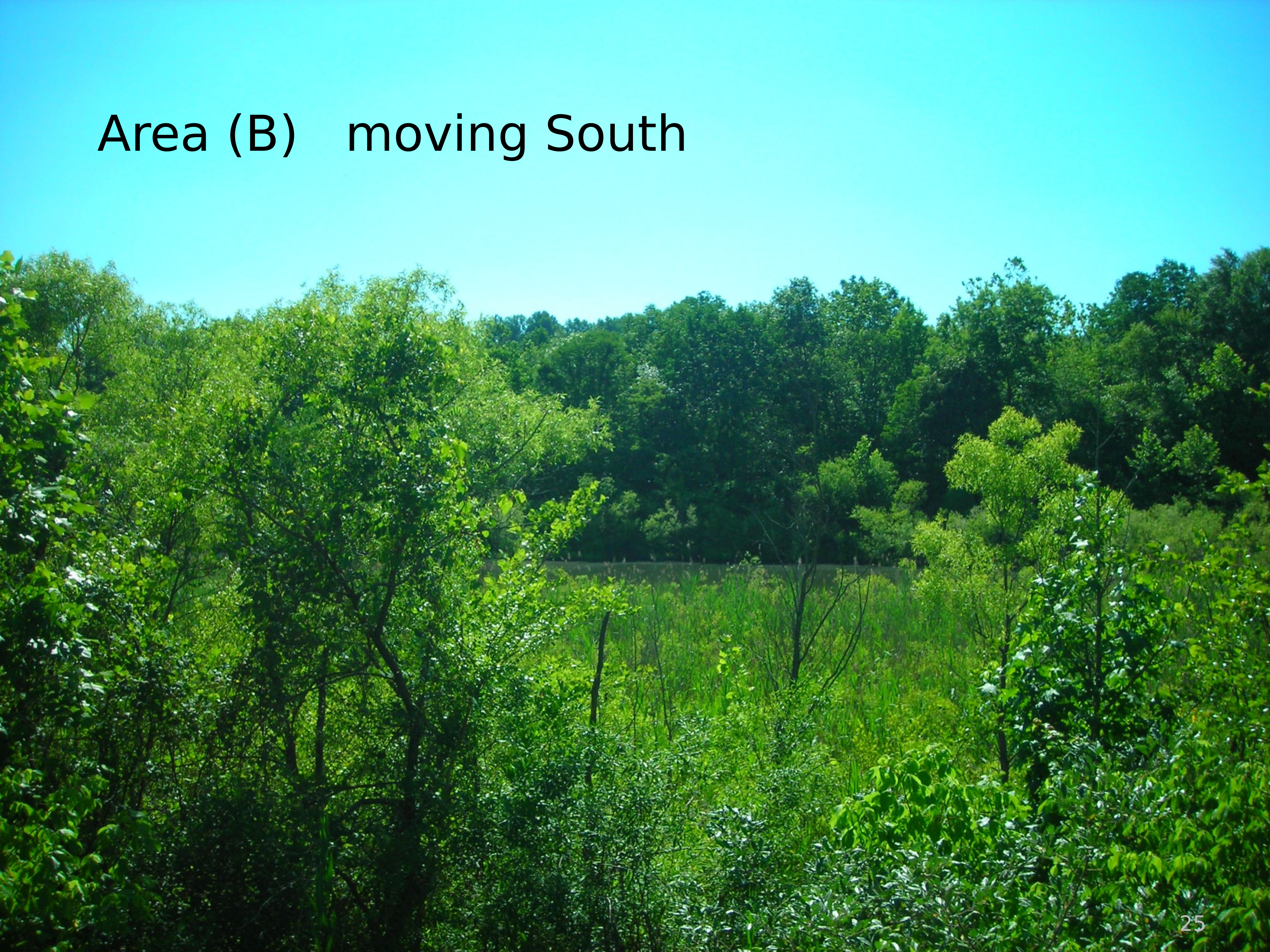
Beaver Pond directly across from Area B. Looking NE



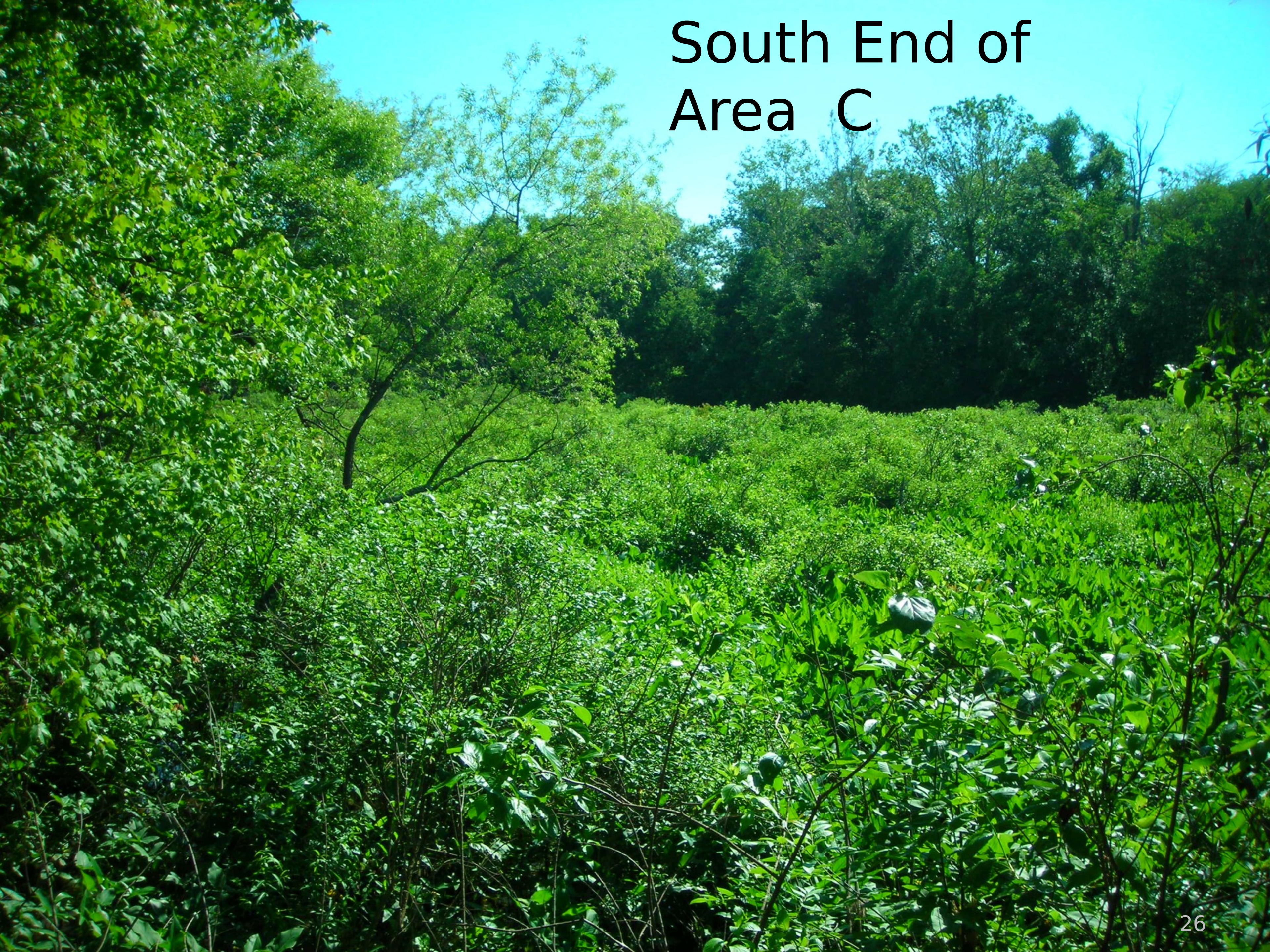
Beaver Pond on SE Corner of wetland site across from Tidal Marsh



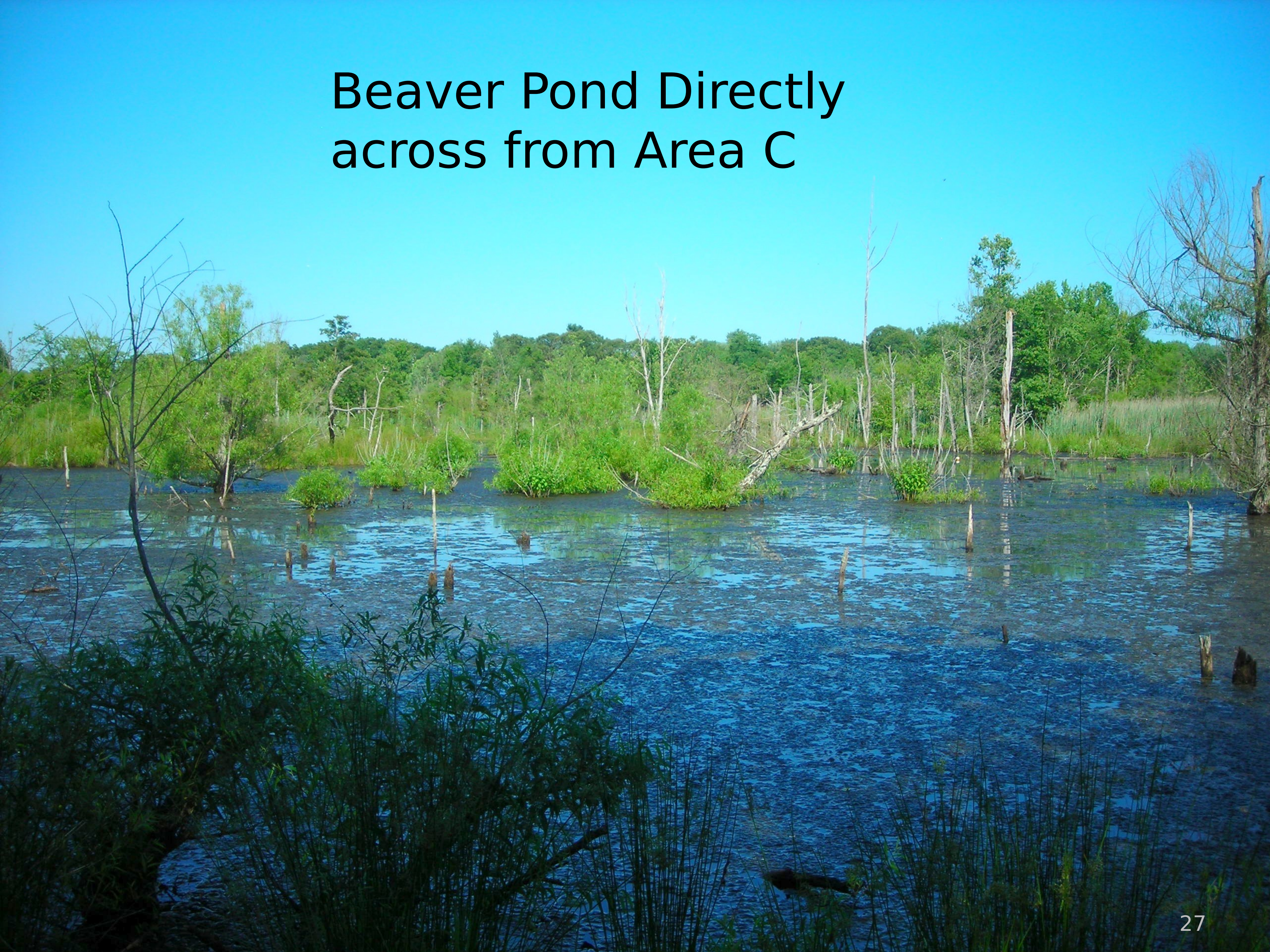
Area (B)   moving South



South End of Area C

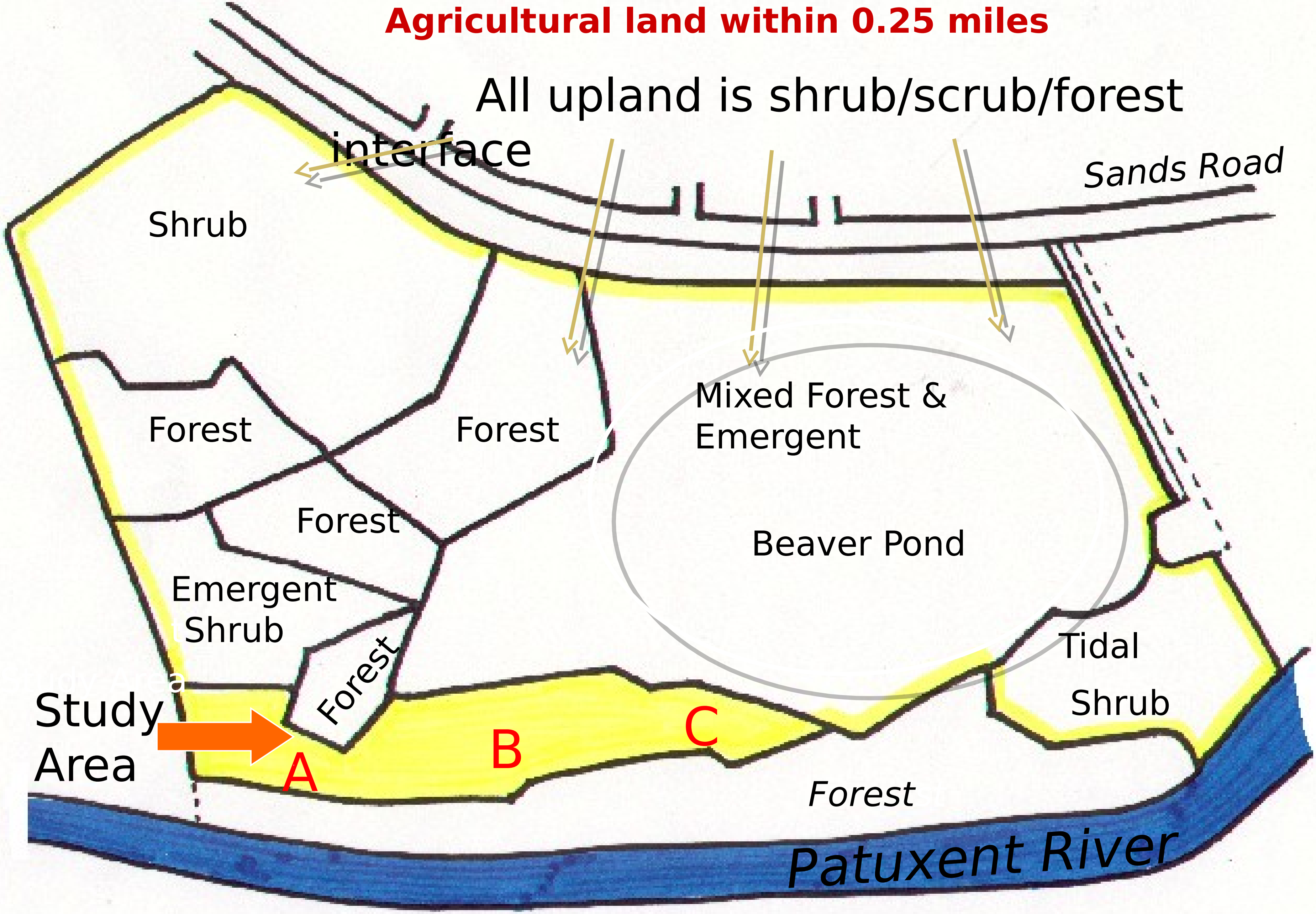


Beaver Pond Directly across from Area C



Interface between area C to the North/right and the Tidal Marsh to the South/Left

Rangeland (herbaceous or shrub/brush) adjacent Agricultural land within 0.25 miles



All upland is shrub/scrub/forest

interface

Study Area

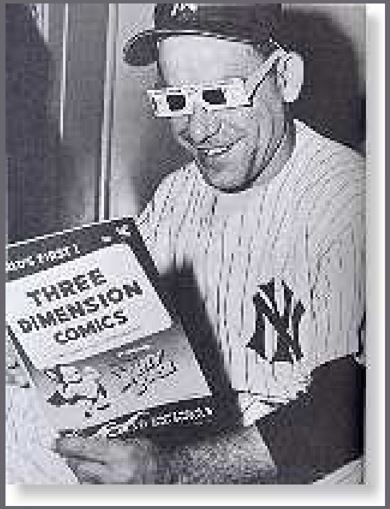
Sands Road
Shrub
Forest
Forest
Forest
Emergent Shrub
Forest
Mixed Forest & Emergent
Beaver Pond
Tidal
Shrub
A
B
C
Forest
Patuxent River

Professional Judgment (PJ)

- Assign a fish and wildlife functional value on a scale of 1(low) to 5 (high) based upon what you saw in the slides.

“You can observe a lot by just watchin”

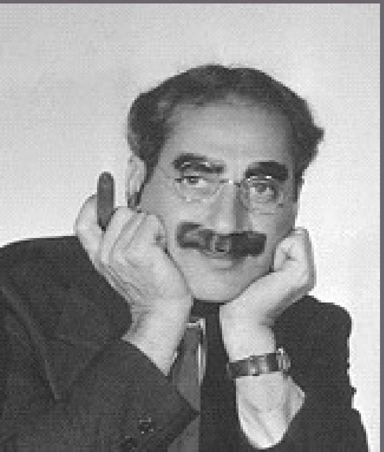
Yogi Berra


THREE DIMENSION COMICS

H.O. # 19

Wetland Rapid Assessment Procedure (WRAP)

Score basically is PJ with some guidelines
Look at the guideline
on Handout #19.



"A child of five would understand this. Send someone to fetch a child of five."
Groucho Marx

In this example, habitat suitability estimated using the models in HO#19. Remember: Models describe:

- *Food*
- *Cover*
- *Water*
- *Reproduction*
  (breeding/nesting
  habitat)

Don’t forget:

SI x acres = HUs

6 HSI x 2 acres = 1.2 HUs

suming we have 2 acres

habitat in our study site compute

mber of HUs present using

three procedures.

HGM Approach
Isolated Depression

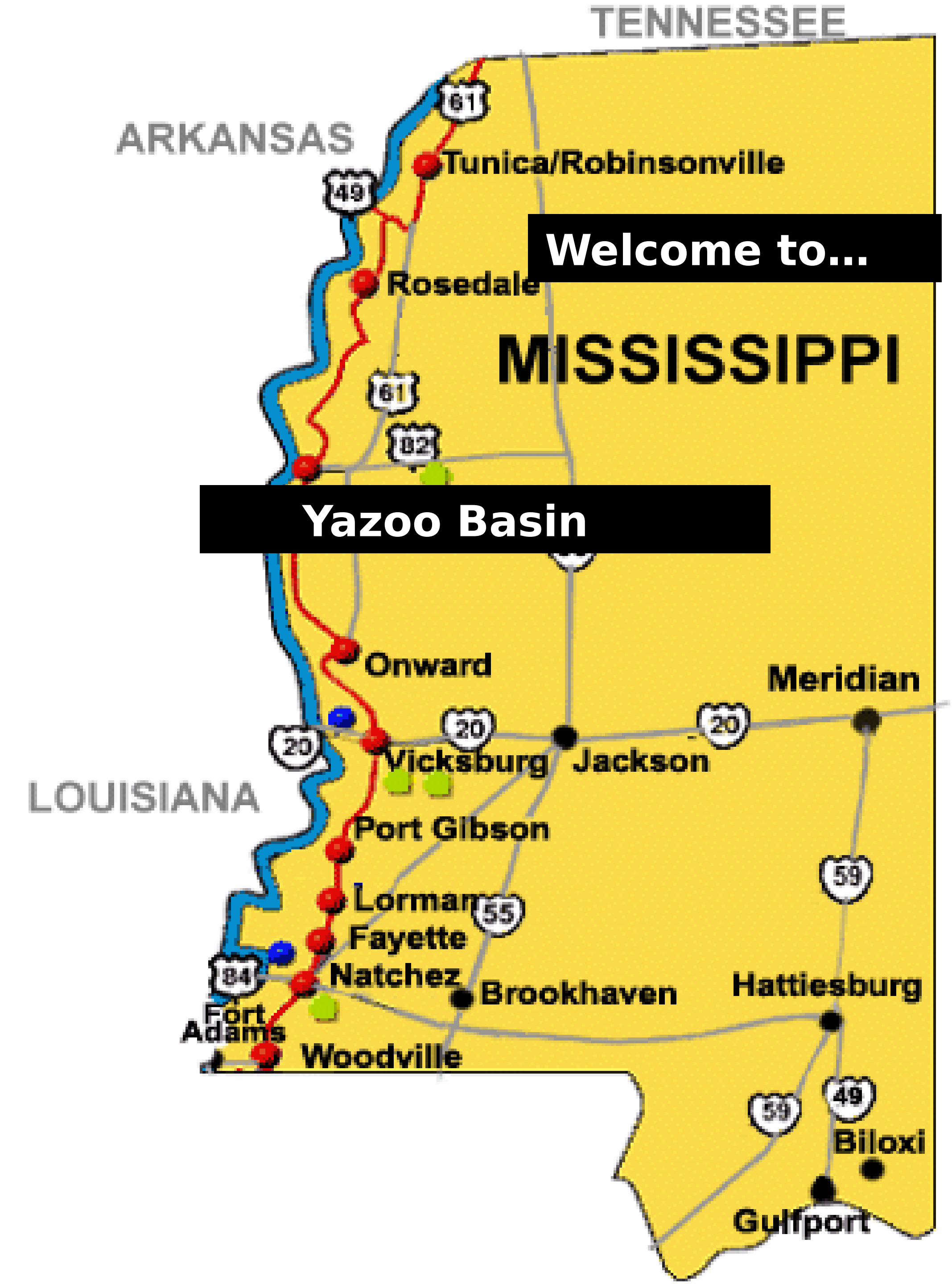
Observe site condition for **nutrient cycling** variables. Apply models and compute corresponding index

Calculate FCI = functional capacity (max = 1.0)

C

Welcome to…

Yazoo Basin


TENNESSEE
ARKANSAS
61
Tunica/Robinsonville
49
Rosedale
MISSISSIPPI
61
82
Onward
Meridian
20
20
20
Vicksburg
Jackson
LOUISIANA
Port Gibson
59
Lorman
55
Fayette
84
Natchez
Brookhaven
Hattiesburg
Fort Adams
Woodville
59
49
Biloxi
Gulfport

DOWN HOME
FISH MART
LIVE CAT FISH
WE ACCEPT FOOD STAMPS
COOK Sea FOOD ONLY
DOWN HOME SPECIAL Cat Fish TUES ONLY
CAT
FISH

WELCOME TO
INDIANOLA
The HOME OF B.B. KING

Functions Covered in HGM Regional Guidebook for Yazoo Basin, MS

- Detain Floodwater
- Detain Precipitation
- **Cycle Nutrients**
- Export Organic Carbon

Handout # 20 in Reference Folder on CD

- Remove Elements and Compounds
- Maintain Plant Communities
- Provide Fish and Wildlife Habitat

Nutrient Cycling FCI = (Vtba +Vssd + Vsnag)/3

Vtba=Tree biomass in terms of basal area (m2/hectare)

Vssd=Understory biomass (shrub/sapling density – stems/hectare)

Vsnag=Snag density

Vtba-Tree biomass-basal area-assume 30 m2/ha

Vssd- Understory biomass-shrub/sapling stems/ha-assume 500/ha

Vsnag-Snag density-stems/ha-assume 25

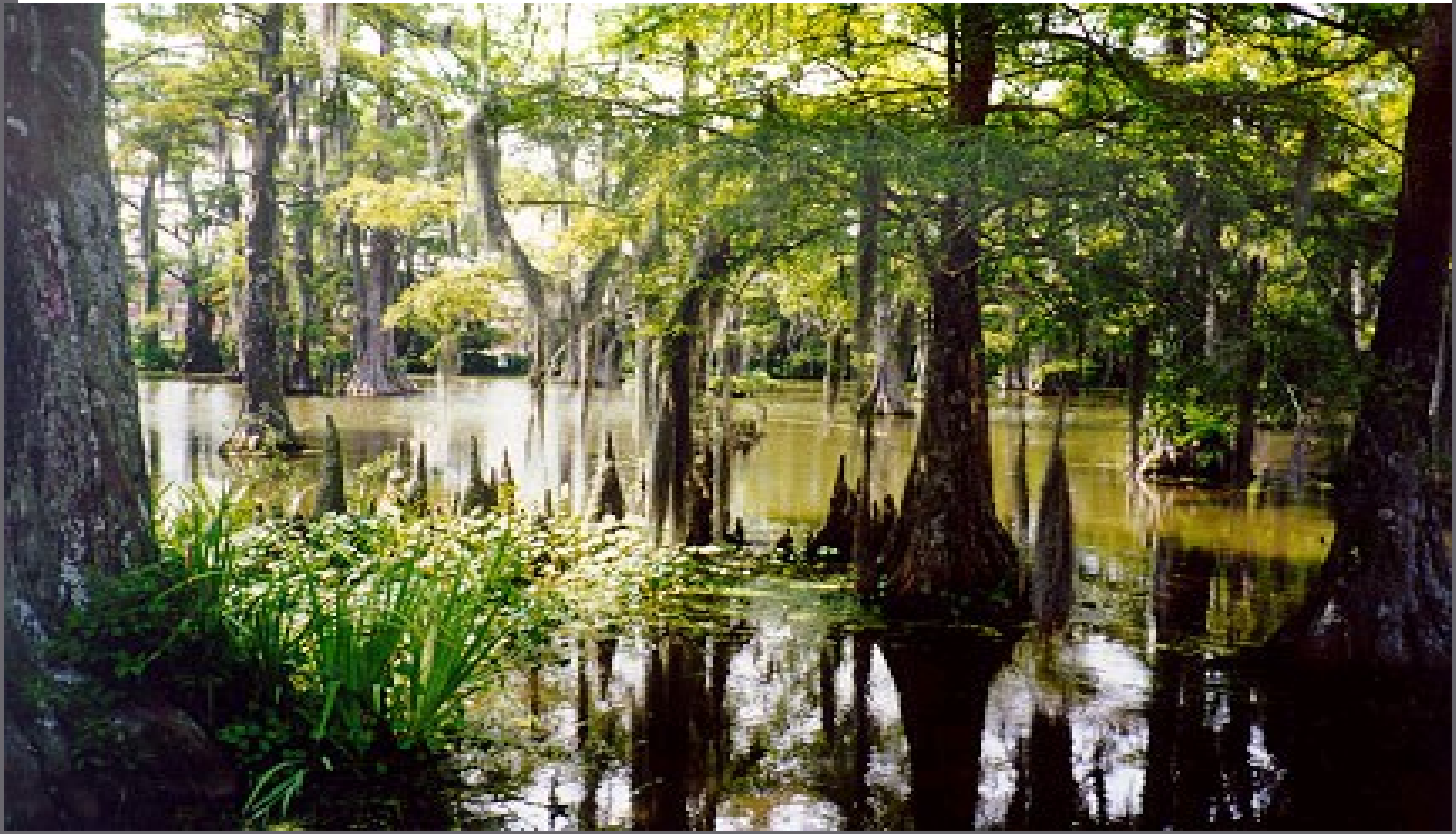
Compute FCI using handout #20, page 7:

Nutrient Cycling FCI=(Vtba +Vssd + Vsnag)/3

(1.0+0.3+0.7)/3 = 0.67

Assuming 10 acres how many **Nutrient Cycling** FCUs? (answer-6.7)

How about this isolated depression?—low or high for nutrient recycling?



Questions?